

=> fil reg
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STRUCTURE FILE UPDATES: 12 NOV 2009 HIGHEST RN 1192299-83-4
 DICTIONARY FILE UPDATES: 12 NOV 2009 HIGHEST RN 1192299-83-4

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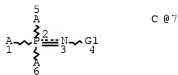
ISCA INFORMATION NOW CURRENT THROUGH June 26, 2009.

Please note that search-term pricing does apply when
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REGISTRY includes numerically searchable data for experimental and
 predicted properties as well as tags indicating availability of
 experimental property data in the original document. For information
 on property searching in REGISTRY, refer to:

<http://www.cas.org/support/stngen/stndoc/properties.html>

=> d que stat l8
 L2 STR



VAR G1=7/SI/N/P/O/S

NODE ATTRIBUTES:

| | | | | |
|-------|----|----|----|---|
| NSPEC | IS | RC | AT | 1 |
| NSPEC | IS | RC | AT | 5 |
| NSPEC | IS | RC | AT | 6 |
| NSPEC | IS | RC | AT | 7 |

DEFAULT MLEVEL IS ATOM

DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

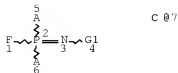
RING(S) ARE ISOLATED OR EMBEDDED

NUMBER OF NODES IS 7

STEREO ATTRIBUTES: NONE

L4 93768 SEA FILE=REGISTRY SSS FUL L2

L5 STR



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VAR G1=7/SI/N/P/O/S
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NSPEC   IS RC      AT   6
NSPEC   IS RC      AT   7
DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED

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GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS   7

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STEREO ATTRIBUTES: NONE
L6              SCR 2043 OR 2049
L8              222 SEA FILE=REGISTRY SUB=L4 SSS FUL L5 NOT L6

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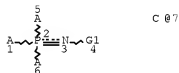
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SEARCH TIME: 00.00.01

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L2              STR

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DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED

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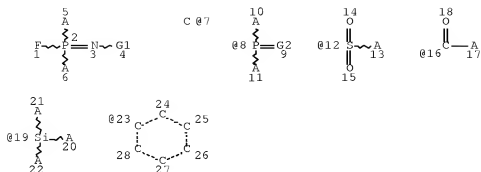
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RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS   7

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STEREO ATTRIBUTES: NONE
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L6              SCR 2043 OR 2049
L9              STR

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VAR G1=8/12/16/19/23

VAR G2=O/S/7/SI/N/P

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NSPEC IS RC AT 6

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NSPEC IS RC AT 17

NSPEC IS RC AT 20

NSPEC IS RC AT 21

NSPEC IS RC AT 22

DEFAULT MLEVEL IS ATOM

DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED

NUMBER OF NODES IS 28

STEREO ATTRIBUTES: NONE

L11 186 SEA FILE=REGISTRY SUB=L4 SSS FUL L9 NOT L6

100.0% PROCESSED 265 ITERATIONS

186 ANSWERS

SEARCH TIME: 00.00.01

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(FILE 'HOME' ENTERED AT 13:45:26 ON 13 NOV 2009)

FILE 'LREGISTRY' ENTERED AT 13:58:25 ON 13 NOV 2009

L1 STR

L2 STR L1

FILE 'REGISTRY' ENTERED AT 14:12:19 ON 13 NOV 2009

L3 50 S L2

L4 93768 S L2 FUL

FILE 'LREGISTRY' ENTERED AT 14:40:14 ON 13 NOV 2009

L5 STR L2

FILE 'REGISTRY' ENTERED AT 15:28:19 ON 13 NOV 2009

L6 SCR 2043 OR 2049
L7 13 S L5 NOT L6 SSS SAM SUB=L4
L8 222 S L5 NOT L6 SSS FUL SUB=L4
SAV L8 WEI558S1/A

FILE 'LREGISTRY' ENTERED AT 15:30:05 ON 13 NOV 2009
L9 STR L5

FILE 'REGISTRY' ENTERED AT 15:37:03 ON 13 NOV 2009
L10 13 S L9 NOT L6 SSS SAM SUB=L4
L11 186 S L9 NOT L6 SSS FUL SUB=L4
SAV L11 WEI558S2/A
L12 36 S L8 NOT L11

FILE 'HCAPLUS' ENTERED AT 15:38:39 ON 13 NOV 2009
L13 32 S L12
L14 58 S L11
L15 1 S 2004:570217/AN
L16 84 S L13 OR L14
L17 QUE ELECTROLY?
L18 QUE BATTERY
L19 10 S L16 AND L17
L20 6 S L16 AND L18
L21 10 S L19 OR L20
L22 QUE ADDITIVE? OR ADJUVANT? OR AUXILIAR? OR MODIF?
L23 QUE AGENT?
L24 2 S L16 AND L22
L25 1 S L16 AND L23
L26 11 S L21 OR L24-25

=> fil heap

FILE 'HCAPLUS' ENTERED AT 15:48:46 ON 13 NOV 2009
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FILE COVERS 1907 - 13 Nov 2009 VOL 151 ISS 21
FILE LAST UPDATED: 12 Nov 2009 (20091112/ED)
REVISED CLASS FIELDS (/NCL) LAST RELOADED: Aug 2009
USPTO MANUAL OF CLASSIFICATIONS THESAURUS ISSUE DATE: Aug 2009

HCAplus now includes complete International Patent Classification (IPC) reclassification data for the third quarter of 2009.

CAS Information Use Policies apply and are available at:

<http://www.cas.org/legal/infopolicy.html>

This file contains CAS Registry Numbers for easy and accurate substance identification.

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=> d ibib abs hitstr hitind 126 1-22

L26 ANSWER 1 OF 11 HCAPLUS COPYRIGHT 2009 ACS on STN
ACCESSION NUMBER: 2007:1334246 HCAPLUS Full-text
DOCUMENT NUMBER: 147:544588
TITLE: Nonaqueous electrolyte containing phosphazene compound and lithium ion secondary battery with high discharge efficiency having the same
INVENTOR(S): Nakagawa, Hiroe; Katayama, Sadahiro; Nukuta, Toshiyuki
PATENT ASSIGNEE(S): GS Yuasa Corp., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 16pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|------------------------|------|----------|-----------------|----------|
| ----- | --- | ----- | ----- | |
| JP 2007305551 | A | 20071122 | JP 2006-135814 | 20060515 |
| PRIORITY APPLN. INFO.: | | | JP 2006-135814 | 20060515 |

OTHER SOURCE(S): MARPAT 147:544588

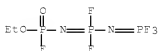
AB Disclosed is a nonaq. electrolyte made from an organic material consisting of a lithium salt, and a salt at molten state at room temperature containing a (cyclic) phosphazene compound and a quaternary ammonium organic cation.

IT 850650-07-6

RL: TEM (Technical or engineered material use); USES (Uses)
(nonaq. electrolyte containing phosphazene compound for lithium ion secondary battery with high discharge efficiency)

RN 850650-07-6 HCAPLUS

CN Phosphoramidofluoridic acid,
N-[difluoro[(trifluorophosphoranylidene)amino]phosphoranylidene]-,
ethyl ester (CA INDEX NAME)



ST nonaq electrolyte cyclic phosphazene compd lithium ion
secondary battery; quaternary ammonium org cation

IT Secondary batteries
(lithium; nonaq. electrolyte containing phosphazene compound
for lithium ion secondary battery with high discharge
efficiency)

IT Battery electrolytes
(nonaq. electrolyte containing phosphazene compound for
lithium ion secondary battery with high discharge
efficiency)

IT Quaternary ammonium compounds, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(nonaq. electrolyte containing phosphazene compound for
lithium ion secondary battery with high discharge
efficiency)

IT 33027-66-6 90076-65-6, LiTFSi 132843-44-8, Lithium
bis(perfluoroethanesulfonyl)imide 143314-16-3,
1-Ethyl-3-methylimidazolium tetrafluoroborate 174501-64-5,
1-Butyl-3-methylimidazolium hexafluorophosphate 174501-65-6,
1-n-Butyl-3-methylimidazolium tetrafluoroborate
850650-07-6
RL: TEM (Technical or engineered material use); USES (Uses)
(nonaq. electrolyte containing phosphazene compound for
lithium ion secondary battery with high discharge
efficiency)

L26 ANSWER 2 OF 11 HCAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2007:145522 HCAPLUS Full-text

DOCUMENT NUMBER: 146:232676

TITLE: Lithium secondary batteries
suppressing electrolytes from
decomposing at high temperature and their
cathodes and cathode materials

INVENTOR(S): Ichihashi, Akira; Kano, Gentaro; Okawa, Takeshi

PATENT ASSIGNEE(S): Sony Corp., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 17pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|------------------------|------|----------|-----------------|--------------|
| ----- | ---- | ----- | ----- | |
| JP 2007035391 | A | 20070208 | JP 2005-215427 | 200507 26 |
| PRIORITY APPLN. INFO.: | | | JP 2005-215427 | 200507 26 |

OTHER SOURCE(S): MARPAT 146:232676

AB The battery cathodes contain materials coated with phosphazenes preferably
represented by X3(X1X2P:N)nX4 [X1-X4 = F, Cl, Br, alkoxy, phenyl(oxy); n ≥ 4].
The cathodes may contain Li- and transition metal-containing active mass
comps. Batteries containing the cathodes, anodes, and electrolytes inside
film-type packages are also claimed. The batteries show less swelling on high-
temperature uses.

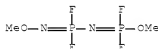
IT 924658-15-1 924658-17-3 924658-23-1

924658-25-3 924658-27-5 924658-28-6

RL: TEM (Technical or engineered material use); USES (Uses)
 (active-mass coatings; battery cathodes having
 phosphazene coatings on active masses and suppressing decomposition at
 high temperature)

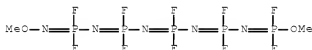
RN 924658-15-1 HCAPLUS

CN Phosphorodifluoridimidic acid,
 N-(P,P-difluoro-N-methoxyphosphinimyl)-, methyl ester (CA INDEX
 NAME)



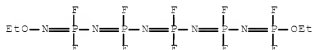
RN 924658-17-3 HCAPLUS

CN Phosphorodifluoridimidic acid,
 N-[N-[N-(N-(P,P-difluoro-N-methoxyphosphinimyl)-P,P-
 difluorophosphinimyl]-P,P-difluorophosphinimyl]-P,P-
 difluorophosphinimyl]-, methyl ester (CA INDEX NAME)



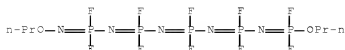
RN 924658-23-1 HCAPLUS

CN Phosphorodifluoridimidic acid,
 N-[N-[N-(N-(N-ethoxy-P,P-difluorophosphinimyl)-P,P-
 difluorophosphinimyl]-P,P-difluorophosphinimyl]-P,P-
 difluorophosphinimyl]-, ethyl ester (CA INDEX NAME)



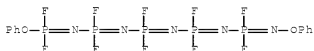
RN 924658-25-3 HCAPLUS

CN Phosphorodifluoridimidic acid,
 N-[N-[N-(N-(P,P-difluoro-N-propoxyphosphinimyl)-P,P-
 difluorophosphinimyl]-P,P-difluorophosphinimyl]-P,P-
 difluorophosphinimyl]-, propyl ester (CA INDEX NAME)



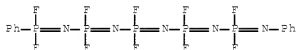
RN 924658-27-5 HCAPLUS

CN Phosphorodifluoridimidic acid,
N-[N-[N-(P,P-difluoro-N-phenoxyphosphinimyl)-P,P-
difluorophosphinimyl]-P,P-difluorophosphinimyl]-P,P-
difluorophosphinimyl]-, phenyl ester (CA INDEX NAME)



RN 924658-28-6 HCAPLUS

CN Phosphoramidimidic difluoride,
N'-(P,P-difluoro-N-phenylphosphinimyl)-N-
[[[(difluorophenylphosphoranylidene)amino]difluorophosphoranylidene
]amino]difluorophosphoranylidene]- (CA INDEX NAME)



CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST lithium secondary battery cathode phosphazene coating;
polydifluorophosphazene battery cathode coating high temp
swelling prevention

IT Battery electrolytes

(battery cathodes having phosphazene coatings on active
masses and suppressing decomposition at high temperature)

IT Polyphosphazenes

RL: TEM (Technical or engineered material use); USES (Uses)
(chlorine-containing, active-mass coatings; battery
cathodes having phosphazene coatings on active masses and
suppressing decomposition at high temperature)

IT Polyphosphazenes

RL: TEM (Technical or engineered material use); USES (Uses)
(fluorine-containing, active-mass coatings; battery
cathodes having phosphazene coatings on active masses and
suppressing decomposition at high temperature)

IT Fluoropolymers, uses

RL: TEM (Technical or engineered material use); USES (Uses)
(gels, electrolytes; battery cathodes having
phosphazene coatings on active masses and suppressing decomposition at
high temperature)

IT Secondary batteries

(lithium; battery cathodes having phosphazene coatings
on active masses and suppressing decomposition at high temperature)

IT Fluoropolymers, uses

RL: TEM (Technical or engineered material use); USES (Uses)
(polyphosphazene-, active-mass coatings; battery
cathodes having phosphazene coatings on active masses and
suppressing decomposition at high temperature)

- IT 924658-15-1 924658-17-3 924658-19-5
 924658-21-9 924658-23-1 924658-25-3
 924658-27-5 924658-28-6
 RL: TEM (Technical or engineered material use); USES (Uses)
 (active-mass coatings; battery cathodes having
 phosphazene coatings on active masses and suppressing decomposition at
 high temperature)
- IT 7782-42-5, Graphite, uses
 RL: TEM (Technical or engineered material use); USES (Uses)
 (anodes; battery cathodes having phosphazene coatings
 on active masses and suppressing decomposition at high temperature)
- IT 12190-79-3, Lithium cobaltate (LiCoO₂)
 RL: TEM (Technical or engineered material use); USES (Uses)
 (cathode active mass; battery cathodes having
 phosphazene coatings on active masses and suppressing decomposition at
 high temperature)
- IT 21324-40-3, Lithium hexafluorophosphate
 RL: TEM (Technical or engineered material use); USES (Uses)
 (electrolytes, infiltrated in polymer gels;
 battery cathodes having phosphazene coatings on active
 masses and suppressing decomposition at high temperature)
- IT 9011-17-0, Hexafluoropropylene-vinylidene fluoride copolymer
 RL: TEM (Technical or engineered material use); USES (Uses)
 (gels, electrolytes; battery cathodes having
 phosphazene coatings on active masses and suppressing decomposition at
 high temperature)

L26 ANSWER 3 OF 11 HCAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2005:450196 HCAPLUS [Full-text](#)

DOCUMENT NUMBER: 142:492196

TITLE: Electrolytic double-layer capacitors
 employing nonaqueous electrolytic
 solutions and showing good charge performance

INVENTOR(S): Kanno, Hiroshi; Otsuki, Masami

PATENT ASSIGNEE(S): Bridgestone Corp., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 20 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|------------------------|------|----------|-----------------|--------------|
| ----- | ---- | ----- | ----- | |
| JP 2005135951 | A | 20050526 | JP 2003-367066 | 200310 28 |
| PRIORITY APPLN. INFO.: | | | JP 2003-367066 | 200310 28 |

AB The capacitors, having porous carbon as electrode active masses, contain
 nonaq. electrolytic solns. and satisfy the ratio of leakage current before and
 after 60° heat stability test ≤60%. The electrolytic solns. may contain
 aprotic solvents and P compds. and/or N compds. The capacitors may satisfy
 charge voltage ≥2.7 V.

IT 22474-63-1D, fluorinated, alkoxy-substituted
 852178-24-6 852178-25-7

RL: DEV (Device component use); MOA (Modifier or additive use); USES

(Uses)

(double-layer capacitors containing oligocyclophosphazenes and showing good capacitance holding ratio)

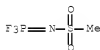
RN 22474-63-1 HCAPLUS

CN Phosphorimidic trifluoride, (difluorophosphinyl)- (8CI, 9CI) (CA INDEX NAME)



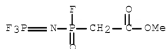
RN 852178-24-6 HCAPLUS

CN Methanesulfonamide, N-(trifluorophosphoranylidene)- (CA INDEX NAME)



RN 852178-25-7 HCAPLUS

CN Acetic acid, 2-[fluoro[(trifluorophosphoranylidene)amino]phosphinyl]-, methyl ester (CA INDEX NAME)



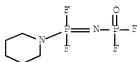
IT 852178-23-5

RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)

(electrolytic solns.; double-layer capacitors containing oligocyclophosphazenes and showing good capacitance holding ratio)

RN 852178-23-5 HCAPLUS

CN Phosphoramidic difluoride, (difluoro-1-piperidinylphosphoranylidene)- (9CI) (CA INDEX NAME)



IC ICM H01G009-038

CC 76-10 (Electric Phenomena)

ST electrolytic double layer capacitor leakage current

minimized; charge performance electrolytic double layer capacitor; static capacitance holding electrolytic capacitor

- IT Electrolytic capacitors
(double-layer; double-layer capacitors containing oligocyclophosphazenes and showing good capacitance holding ratio)
- IT 22474-63-1D, fluorinated, alkoxy-substituted
852178-24-6 852178-25-7
RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
(double-layer capacitors containing oligocyclophosphazenes and showing good capacitance holding ratio)
- IT 852178-23-5
RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
(electrolytic solns.; double-layer capacitors containing oligocyclophosphazenes and showing good capacitance holding ratio)

L26 ANSWER 4 OF 11 HCAPLUS COPYRIGHT 2009 ACS on STN
ACCESSION NUMBER: 2005:445414 HCAPLUS Full-text
DOCUMENT NUMBER: 142:492192
TITLE: Electrolytic double-layer capacitors
employing nonaqueous electrolytic solutions
INVENTOR(S): Kanno, Hiroshi; Otsuki, Masatomo
PATENT ASSIGNEE(S): Bridgestone Corp., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 19 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|------------------------|------|----------|-----------------|--------------|
| ----- | ---- | ----- | ----- | |
| JP 2005135950 | A | 20050526 | JP 2003-367052 | 200310 28 |
| PRIORITY APPLN. INFO.: | | | | 200310 28 |
| | | | | 200310 28 |

- AB The capacitors contain nonaq. electrolytic solns. preferably containing P compds. and/or N compds. and satisfy static capacitance degradation $\leq 10\%$ on heat stability test at 60° . The electrolytic solns. may contain aprotic organic solvents. The pos. and neg. electrodes of the capacitors may contain porous carbon (of surface functional group number ≤ 100 meq/g) as active masses. The capacitors show charge voltage of ≥ 2.5 V and long-term stability of capacitance performance.
- IT 22474-63-1D, ethoxy-substituted derivs.
852178-23-5 852178-24-6 852178-25-7
RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
(electrolytic solns.; electrolytic double-layer capacitors containing cyclic oligophosphazenes in nonaq. electrolytic solns.)

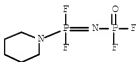
RN 22474-63-1 HCAPLUS

CN Phosphorimidic difluoride, (difluorophosphinyl)- (8CI, 9CI) (CA INDEX NAME)



RN 852178-23-5 HCAPLUS

CN Phosphoramidic difluoride, (difluoro-1-piperidinylphosphoranylidene)- (9CI) (CA INDEX NAME)



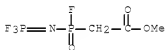
RN 852178-24-6 HCAPLUS

CN Methanesulfonamide, N-(trifluorophosphoranylidene)- (CA INDEX NAME)



RN 852178-25-7 HCAPLUS

CN Acetic acid, 2-[fluoro(trifluorophosphoranylidene)amino]phosphinyl]-, methyl ester (CA INDEX NAME)



IC ICM H01G009-038

ICS H01G009-058

CC 76-10 (Electric Phenomena)

ST electrolytic double layer capacitor charge performance;

nonaq electrolytic soln phosphazene contg capacitor;

porous carbon electrode capacitor long term stability

IT Electrolytic capacitors

(double-layer; electrolytic double-layer capacitors

containing cyclic oligophosphazenes in nonaq. electrolytic

solns.)

IT Carbon black, uses

RL: DEV (Device component use); USES (Uses)

(electrolytic double-layer capacitors containing cyclic oligophosphazenes in nonaq. electrolytic solns.)

IT Polyphosphazenes
 RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)
 (oligomeric, cyclic, fluorinated, alkoxy-substituted; electrolytic double-layer capacitors containing cyclic oligophosphazenes in nonaq. electrolytic solns.)

IT 7440-44-0, Carbon, uses
 RL: DEV (Device component use); USES (Uses)
 (electrodes; electrolytic double-layer capacitors containing cyclic oligophosphazenes in nonaq. electrolytic solns.)

IT 108-32-7, Propylene carbonate
 RL: DEV (Device component use); USES (Uses)
 (electrolytic double-layer capacitors containing cyclic oligophosphazenes in nonaq. electrolytic solns.)

IT 22474-63-1D, ethoxy-substituted derivs.
 852178-23-5 852178-24-6 852178-25-7
 RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
 (electrolytic solns.; electrolytic double-layer capacitors containing cyclic oligophosphazenes in nonaq. electrolytic solns.)

OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD (1 CITINGS)

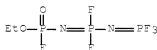
L26 ANSWER 5 OF 11 HCAPLUS COPYRIGHT 2009 ACS on STN
 ACCESSION NUMBER: 2005:368511 HCAPLUS [Full-text](#)
 DOCUMENT NUMBER: 142:433056
 TITLE: Secondary nonaqueous electrolyte battery
 INVENTOR(S): Koto, Tomoko
 PATENT ASSIGNEE(S): Japan Storage Battery Co., Ltd., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 13 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|------------------------|------|----------|-----------------|----------|
| ----- | ---- | ----- | ----- | |
| JP 2005116306 | A | 20050428 | JP 2003-348133 | 20031007 |
| PRIORITY APPLN. INFO.: | | | JP 2003-348133 | 20031007 |

AB The battery has a cathode, containing a Li-Ni-Mn composite oxide : $\text{Li}_x\text{Ni}_y\text{Mn}_2\text{-yO}_4\text{-}\delta$ ($0 < x < 1.1$; $0.45 < y < 0.55$; and $0 \leq \delta < 0.4$) as a cathode active mass, an anode, and a nonaq. electrolyte solution; where the electrolyte solution contains 0.1-20 mass% phosphazene derivative

IT 850650-07-6
 RL: MOA (Modifier or additive use); USES (Uses)
 (cathodes containing lithium manganese nickel oxides and electrolytes containing phosphazene derivs. for secondary lithium batteries)

RN 850650-07-6 HCAPLUS
 CN Phosphoramidofluoridic acid,
 N-[difluoro]-(trifluorophosphoranylidene)amino]phosphoranylidene]-,
 ethyl ester (CA INDEX NAME)



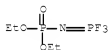
IC ICM H01M010-40
 ICS H01M004-02; H01M004-58
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 ST secondary lithium battery cathode lithium manganese nickel
 oxide; battery electrolyte phosphazene deriv
 IT Battery cathodes
 Battery electrolytes
 (cathodes containing lithium manganese nickel oxides and
 electrolytes containing phosphazene derivs. for secondary
 lithium batteries)
 IT Polyphosphazenes
 RL: MOA (Modifier or additive use); USES (Uses)
 (cyclic; cathodes containing lithium manganese nickel oxides and
 electrolytes containing phosphazene derivs. for secondary
 lithium batteries)
 IT Secondary batteries
 (lithium; cathodes containing lithium manganese nickel oxides and
 electrolytes containing phosphazene derivs. for secondary
 lithium batteries)
 IT 96-48-0, γ -Butyrolactone 96-49-1, Ethylene carbonate
 105-58-8, Diethyl carbonate 108-32-7, Propylene carbonate
 616-38-6, Dimethyl carbonate 623-53-0, Ethyl methyl carbonate
 7782-42-5, Graphite, uses 12031-75-3, Lithium manganese nickel
 oxide (LiMn1.5Ni0.5O4) 14283-07-9, Lithium tetrafluoroborate
 21324-40-3, Lithium hexafluorophosphate
 RL: DEV (Device component use); USES (Uses)
 (cathodes containing lithium manganese nickel oxides and
 electrolytes containing phosphazene derivs. for secondary
 lithium batteries)
 IT 850650-07-6
 RL: MOA (Modifier or additive use); USES (Uses)
 (cathodes containing lithium manganese nickel oxides and
 electrolytes containing phosphazene derivs. for secondary
 lithium batteries)
 OS.CITING REF COUNT: 3 THERE ARE 3 CAPLUS RECORDS THAT CITE THIS
 RECORD (3 CITINGS)

L26 ANSWER 6 OF 11 HCAPLUS COPYRIGHT 2009 ACS on STN
 ACCESSION NUMBER: 2004:605979 HCAPLUS Full-text
 DOCUMENT NUMBER: 141:149554
 TITLE: Separator for nonaqueous-electrolyte
 double layer capacitor
 INVENTOR(S): Kanno, Hiroshi; Otsuki, Masami; Eguchi, Shinichi
 PATENT ASSIGNEE(S): Bridgestone Corp., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 18 pp.
 CODEN: JKXXAF

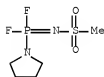
DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|------------------------|------|----------|-----------------|----------|
| JP 2004214356 | A | 20040729 | JP 2002-381018 | 20021227 |
| PRIORITY APPLN. INFO.: | | | JP 2002-381018 | 20021227 |

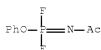
OTHER SOURCE(S): MARPAT 141:149554
 AB A nonflammable separator for a nonaq.-electrolyte double layer capacitor comprises a finely porous film formed by adding a phosphazene derivative (or its isomer) to a polymer. Specifically, the polymer may comprise a polyolefin such as polyethylene or polypropylene.
 IT 722454-84-4 722454-85-5 722454-86-6
 RL: DEV (Device component use); USES (Uses)
 (separator containing phosphazene derivative for nonaq.-electrolyte double layer capacitor)
 RN 722454-84-4 HCAPLUS
 CN Phosphoramidic acid, (trifluorophosphoranylidene)-, diethyl ester (9CI) (CA INDEX NAME)



RN 722454-85-5 HCAPLUS
 CN Phosphonimidic difluoride, N-(methylsulfonyl)-P-1-pyrrolidinyl- (9CI) (CA INDEX NAME)



RN 722454-86-6 HCAPLUS
 CN Phosphorodifluoridimidic acid, acetyl-, phenyl ester (9CI) (CA INDEX NAME)



IC ICM H01G009-02
 CC 76-10 (Electric Phenomena)
 ST phosphazene deriv polymer separator nonaq electrolyte
 double layer capacitor
 IT Capacitors
 (double layer; separator containing phosphazene derivative for nonaq.-
 electrolyte double layer capacitor)
 IT Porous materials
 (films; separator containing phosphazene derivative for nonaq.-
 electrolyte double layer capacitor)
 IT Films
 (porous; separator containing phosphazene derivative for nonaq.-
 electrolyte double layer capacitor)
 IT Polyolefins
 RL: DEV (Device component use); USES (Uses)
 (separator containing phosphazene derivative for nonaq.-
 electrolyte double layer capacitor)
 IT Phosphazenes
 RL: DEV (Device component use); TEM (Technical or engineered
 material use); USES (Uses)
 (separator containing phosphazene derivative for nonaq.-
 electrolyte double layer capacitor)
 IT 2397-48-0 9002-88-4, Polyethylene 9003-07-0, Polypropylene
 722454-84-4 722454-85-5 722454-86-6
 724792-60-3
 RL: DEV (Device component use); USES (Uses)
 (separator containing phosphazene derivative for nonaq.-
 electrolyte double layer capacitor)

L26 ANSWER 7 OF 11 HCAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2004:589783 HCAPLUS Full-text

DOCUMENT NUMBER: 141:126373

TITLE: Separator for nonaqueous electrolyte
 battery

INVENTOR(S): Kanno, Hiroshi; Otsuki, Masashi; Eguchi,
 Shinichi

PATENT ASSIGNEE(S): Bridgestone Corporation, Japan

SOURCE: PCT Int. Appl., 32 pp.
 CODEN: PIXXD2

DOCUMENT TYPE: Patent
 LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

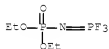
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|--|------|----------|-----------------|--------------|
| ----- | ---- | ----- | ----- | ----- |
| WO 2004062002 | A1 | 20040722 | WO 2003-JP16360 | 200312 19 |
| W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, | | | | |

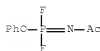
AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE,
 DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO,
 SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML,
 MR, NE, SN, TD, TG

AU 2003289453 A1 20040729 AU 2003-289453 200312
 19
 EP 1603175 A1 20051207 EP 2003-780936 200312
 19
 R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC,
 PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU,
 SK
 CN 1732580 A 20060208 CN 2003-80107738 200312
 19
 US 20060073381 A1 20060406 US 2005-540837 200506
 27
 US 7585587 B2 20090908
 PRIORITY APPLN. INFO.: JP 2002-380683 A 200212
 27
 WO 2003-JP16360 W 200312
 19

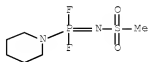
AB The separator, which is incombustible even when the inside of a battery has a high temperature and useful for a primary or secondary Li battery, comprises a micro-porous film formed by adding a phosphazene derivative and/or an isomer of a phosphazene derivative to a polymer.
 IT 722454-84-4 722454-86-6 724792-59-0
 RL: DEV (Device component use); USES (Uses)
 (separators containing phosphazene derivative added polymers for primary and secondary lithium batteries)
 RN 722454-84-4 HCAPLUS
 CN Phosphoramidic acid, (trifluorophosphoranylidene)-, diethyl ester (9CI) (CA INDEX NAME)



RN 722454-86-6 HCAPLUS
 CN Phosphorodifluoridimidic acid, acetyl-, phenyl ester (9CI) (CA INDEX NAME)



RN 724792-59-0 HCAPLUS

CN Phosphonimidic difluoride, N-(methylsulfonyl)-P-1-piperidinyl- (9CI)
(CA INDEX NAME)

IC ICM H01M002-16

ICS H01M010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST nonaq electrolyte battery incombustible
separator phosphazene deriv added polymerIT Primary battery separators
Secondary battery separators(separators containing phosphazene derivative added polymers for primary
and secondary lithium batteries)

IT 7439-93-2, Lithium, uses

RL: DEV (Device component use); USES (Uses)

(anode; separators containing phosphazene derivative added polymers for
primary and secondary lithium batteries)IT 1313-13-9, Manganese dioxide, uses 12190-79-3, Cobalt lithium
oxide (CoLiO2)

RL: DEV (Device component use); USES (Uses)

(cathode; separators containing phosphazene derivative added polymers for
primary and secondary lithium batteries)IT 96-48-0, γ -Butyrolactone 96-49-1, Ethylene carbonate

105-58-8, Diethyl carbonate 957-13-1 1184-10-7 2397-48-0

9002-88-4, Polyethylene 14283-07-9, Lithium tetrafluoroborate

33027-68-8 722454-84-4 722454-86-6

724792-59-0

RL: DEV (Device component use); USES (Uses)

(separators containing phosphazene derivative added polymers for primary
and secondary lithium batteries)

IT 724792-60-3

RL: DEV (Device component use); USES (Uses)

(separators containing phosphazene derivative added polymers for primary
and secondary nonaq. electrolyte batteries)REFERENCE COUNT: 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR
THIS RECORD. ALL CITATIONS AVAILABLE IN
THE RE FORMAT

L26 ANSWER 8 OF 11 HCAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2004:570217 HCAPLUS [Full-text](#)

DOCUMENT NUMBER: 141:126304

TITLE: Additive for secondary battery
nonaqueous electrolyte solution and
the battery

INVENTOR(S): Otsuki, Masashi; Horikawa, Yasuro

PATENT ASSIGNEE(S): Bridgestone Corporation, Japan

SOURCE: PCT Int. Appl., 33 pp.

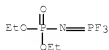
CODEN: PIXXD2

DOCUMENT TYPE: Patent

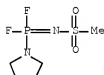
LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

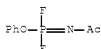
| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|--|----------|------------------|------------|
| ----- | ---- | ----- | ----- | |
| WO 2004059782 | A1 | 20040715 | WO 2003-JP16592 | 20031224 |
| W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW | | | | |
| RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG | | | | |
| AU 2003292764 | A1 | 20040722 | AU 2003-292764 | 20031224 |
| EP 1580832 | A1 | 20050928 | EP 2003-768180 | 20031224 |
| EP 1580832 | B1 | 20091104 | | |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK | | | | |
| CN 1732588 | A | 20060208 | CN 2003-80107739 | 20031224 |
| CN 100362689 | C | 20080116 | | |
| US 20060046151 | A1 | 20060302 | US 2005-540558 | 20050624 |
| PRIORITY APPLN. INFO.: | | | JP 2002-377142 | A 20021226 |
| | | | WO 2003-JP16592 | W 20031224 |
| AB | The additive comprises a phosphazene derivative represented by R13P = N-X (R1 = halo or monovalent substituent; and X = C, Si, N, P, O and/or S containing organic group). The battery has a nonaq. electrolyte solution comprising the above additive, a cathode, and an anode. | | | |
| IT | 722454-84-4 722454-85-5 722454-86-6 RL: MOA (Modifier or additive use); USES (Uses) (additives containing phosphazene derivs. for secondary battery electrolytes) | | | |
| RN | 722454-84-4 HCAPLUS | | | |
| CN | Phosphoramidic acid, (trifluorophosphoranylidene)-, diethyl ester (9CI) (CA INDEX NAME) | | | |



RN 722454-85-5 HCAPLUS

CN Phosphonimidic difluoride, N-(methylsulfonyl)-P-1-pyrrolidinyl-
(9CI) (CA INDEX NAME)

RN 722454-86-6 HCAPLUS

CN Phosphorodifluoridimidic acid, acetyl-, phenyl ester (9CI) (CA
INDEX NAME)

IC ICM H01M010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST secondary lithium battery nonaq electrolyte
additive phosphazene deriv

IT Battery electrolytes

(additives containing phosphazene derivs. for secondary
battery electrolytes)

IT Secondary batteries

(lithium; additives containing phosphazene derivs. for
secondary battery electrolytes)IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate
12190-79-3, Cobalt lithium oxide (CoLiO2) 21324-40-3, Lithium
hexafluorophosphate

RL: DEV (Device component use); USES (Uses)

(additives containing phosphazene derivs. for secondary
battery electrolytes)IT 2397-48-0 722454-84-4 722454-85-5
722454-86-6

RL: MOA (Modifier or additive use); USES (Uses)

(additives containing phosphazene derivs. for secondary
battery electrolytes)REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR
THIS RECORD. ALL CITATIONS AVAILABLE IN
THE RE FORMAT

L26 ANSWER 9 OF 11 HCAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2004:570177 HCAPLUS [Full-text](#)

DOCUMENT NUMBER:

141:132681

TITLE:

Phosphazene derivative additives for
nonaqueous electrolytic solution and
nonaqueous electrolyte electric
double-layer capacitors

INVENTOR(S):

Otsuki, Masashi; Horikawa, Yasuro

PATENT ASSIGNEE(S):

Bridgestone Corporation, Japan

SOURCE:

PCT Int. Appl., 31 pp.

CODEN: PIXXD2

DOCUMENT TYPE:

Patent

LANGUAGE:

Japanese

FAMILY ACC. NUM. COUNT:

1

PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|--|------|----------|------------------|----------|
| WO 2004059671 | A1 | 20040715 | WO 2003-JP16585 | 20031224 |
| W: | | | | |
| AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW | | | | |
| RW: | | | | |
| BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG | | | | |
| AU 2003292758 | A1 | 20040722 | AU 2003-292758 | 20031224 |
| EP 1577913 | A1 | 20050921 | EP 2003-768173 | 20031224 |
| R: | | | | |
| AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK | | | | |
| CN 1732541 | A | 20060208 | CN 2003-80107740 | 20031224 |
| US 20060092596 | A1 | 20060504 | US 2005-540565 | 20050624 |
| PRIORITY APPLN. INFO.: | | | JP 2002-377128 | A |
| | | | WO 2003-JP16585 | W |
| | | | | 20031224 |

AB The title additives in the nonaq. electrolytic solns. for elec. double-layer capacitors are phosphazene derivs. R13P-N (R1 = halo, monovalent substituent; X = organic group containing C, Si, N, P, O, S). The additives have high dissoln. power for supporting salts and a low viscosity. A nonaq. electrolyte elec. double-layer capacitors provided with the title electrolytic solution

containing the additives have excellent fast or high-rate charge-discharge characteristics.

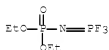
IT 722454-84-4P 722454-85-5P
722454-86-6P

RL: PNU (Preparation, unclassified); PRP (Properties); PREP (Preparation)

(phosphazene derivative additives for nonaq. electrolytic solution and nonaq. electrolyte elec. double-layer capacitors)

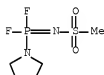
RN 722454-84-4 HCAPLUS

CN Phosphoramidic acid, (trifluorophosphoranylidene)-, diethyl ester (9CI) (CA INDEX NAME)



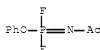
RN 722454-85-5 HCAPLUS

CN Phosphonimidic difluoride, N-(methylsulfonyl)-P-1-pyrrolidinyl- (9CI) (CA INDEX NAME)



RN 722454-86-6 HCAPLUS

CN Phosphorodifluoridimidic acid, acetyl-, phenyl ester (9CI) (CA INDEX NAME)



IC ICM H01G009-038

CC 76-10 (Electric Phenomena)

ST phosphazene additive nonaq electrolyte fast charging double layer capacitor

IT Electric double layer

(capacitors; phosphazene derivative additives for nonaq. electrolytic solution and nonaq. electrolyte elec. double-layer capacitors)

IT Phosphazenes

RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses)
(derivs., additives; phosphazene derivative additives for nonaq. electrolytic solution and nonaq. electrolyte elec. double-layer capacitors)

IT Capacitors
(double layer, nonaq. electrolytic solns. containing phosphazene additives; phosphazene derivative additives for nonaq. electrolytic solution and nonaq. electrolyte elec. double-layer capacitors)

IT Dissolution
(of salts, in electrolytic solution; phosphazene derivative additives for nonaq. electrolytic solution and nonaq. electrolyte elec. double-layer capacitors)

IT Electrolytic solutions
(phosphazene derivative additives for nonaq. electrolytic solution and nonaq. electrolyte elec. double-layer capacitors)

IT Viscosity
(salts, in phosphazene-containing electrolyte solution; phosphazene derivative additives for nonaq. electrolytic solution and nonaq. electrolyte elec. double-layer capacitors)

IT Solubility
(saturation, of salts, in electrolytic solution; phosphazene derivative additives for nonaq. electrolytic solution and nonaq. electrolyte elec. double-layer capacitors)

IT 2397-48-0P
RL: PNU (Preparation, unclassified); PRP (Properties); PREP (Preparation)
(phosphazene additive, in nonaq. electrolytic solution; phosphazene derivative additives for nonaq. electrolytic solution and nonaq. electrolyte elec. double-layer capacitors)

IT 722454-84-4P 722454-85-5P 722454-86-6P
RL: PNU (Preparation, unclassified); PRP (Properties); PREP (Preparation)
(phosphazene derivative additives for nonaq. electrolytic solution and nonaq. electrolyte elec. double-layer capacitors)

IT 429-06-1, Tetraethylammonium tetrafluoroborate
RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses)
(saturation solubility in phosphazene-containing electrolytic solution; phosphazene derivative additives for nonaq. electrolytic solution and nonaq. electrolyte elec. double-layer capacitors)

OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD (1 CITINGS)

REFERENCE COUNT: 11 THERE ARE 11 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L26 ANSWER 10 OF 11 HCAPLUS COPYRIGHT 2009 ACS on STN
ACCESSION NUMBER: 2004:139816 HCAPLUS Full-text
DOCUMENT NUMBER: 140:184695
TITLE: Secondary nonaqueous electrolyte battery
INVENTOR(S): Narioka, Yoshinori; Mori, Sumio
PATENT ASSIGNEE(S): Japan Storage Battery Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 14 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

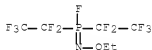
| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|------------------------|------|----------|-----------------|----------|
| JP 2004055208 | A | 20040219 | JP 2002-208280 | 20020717 |
| PRIORITY APPLN. INFO.: | | | JP 2002-208280 | 20020717 |

AB The battery has an active mass containing anode and a Li salt dissolved nonaq. electrolyte solution; where the electrolyte solution has a halo-containing phosphazene compound and the anode has a binder comprising a non-halo material.

IT 657348-91-9
RL: DEV (Device component use); USES (Uses)
(electrolyte solns. having halo-containing phosphazene compds. for secondary lithium batteries)

RN 657348-91-9 HCAPLUS

CN Phosphinimidic fluoride, N-ethoxy-P,P-bis(pentafluoroethyl)- (9CI)
(CA INDEX NAME)



IC ICM H01M010-40
ICS H01M004-02; H01M004-62

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST secondary battery electrolyte halo contg
phosphazene compd; anode binder nonhalo compd secondary
battery

IT Fluoropolymers, uses
Styrene-butadiene rubber, uses
RL: DEV (Device component use); USES (Uses)
(anode binder; anode binders containing non-halo materials for
secondary lithium batteries)

IT Battery anodes
(anode binders containing non-halo materials for secondary lithium
batteries)

IT Battery electrolytes
(electrolyte solns. having halo-containing phosphazene
compds. for secondary lithium batteries)

IT Secondary batteries
(secondary lithium batteries having halo-containing
phosphazene compds. in electrolyte solns. and non-halo
materials in anodes)

IT 7782-42-5, Graphite, uses
RL: DEV (Device component use); USES (Uses)
(anode active mass; anode binders containing non-halo materials for
secondary lithium batteries)

IT 24937-79-9, PvdF
RL: DEV (Device component use); USES (Uses)

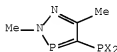
(anode binder; anode binders containing non-halo materials for secondary lithium batteries)

IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 21324-40-3, Lithium hexafluorophosphate 657348-91-9
 RL: DEV (Device component use); USES (Uses)
 (electrolyte solns. having halo-containing phosphazene compds. for secondary lithium batteries)

IT 9003-55-8
 RL: DEV (Device component use); USES (Uses)
 (styrene-butadiene rubber, anode binder; anode binders containing non-halo materials for secondary lithium batteries)

OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD (1 CITINGS)

L26 ANSWER 11 OF 11 HCAPLUS COPYRIGHT 2009 ACS on STN
 ACCESSION NUMBER: 1999:327314 HCAPLUS Full-text
 DOCUMENT NUMBER: 131:87959
 TITLE: Chemistry of Diazaphospholephosphines. 2. Exocyclic Phosphine-Sulfido, -Selenido, and -Imido Derivatives of a Diazaphospholephosphine System. Crystal and Molecular Structures of Two Diazaphospholephosphine Imines: 4-(Difluoro((p-cyanotetrafluorophenyl)imino)phosphorano)-2,5-dimethyl-2H-1,2,3 σ 2-diazaphosphole and 4-(Bis(dimethylamino)((pentamethylcyclopentadienyl)dichlorotitanio)imino)phosphorano)-2,5-dimethyl-2H-1,2,3 σ 2-diazaphosphole
 AUTHOR(S): Mikoluk, Michael D.; McDonald, Robert; Cavell, Ronald G.
 CORPORATE SOURCE: Department of Chemistry, University of Alberta, Alberta, AB, T6G 2G2, Can.
 SOURCE: Inorganic Chemistry (1999), 38(12), 2791-2801
 CODEN: INOCAJ; ISSN: 0020-1669
 PUBLISHER: American Chemical Society
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 GI



I

AB The substituted-exo-phosphine diazaphospholephosphines I (X = F, NMe₂, OCH₂CF₃) are exclusively oxidized at this center with either chalcogens (S, Se) or azides to phosphoranodiazaphospholes. Oxidation imparts a dramatic upfield shift of the phosphorus NMR signals and an increase in the 1JPC coupling consts. within the ring. (Difluorophosphino)diazaphosphole was also oxidized with selected amines using di-Et azodicarboxylate (DAD) as the coupling agent. Bulky amines (e.g., 2,4,6-tri-tert-butylaniline (mes*)) gave the monomeric iminophosphorane whereas less bulky amines (p-toluidine) formed mostly the cyclic diazadiphosphetidine. The crystal and mol. structure of

4-(difluoro((p-cyanotetrafluorophenyl)imino)phosphorano)-2,5-dimethyl-2H-1,2,3o2-diazaphosphole was determined: triclinic, P.hivin.1 (Number 2), $a = 7.2744(15)$ Å, $b = 10.087(4)$ Å, $c = 10.566(2)$ Å, $\alpha = 66.62(2)^\circ$, $\beta = 77.60(2)^\circ$, $\gamma = 78.14(3)^\circ$, $V = 688.8(4)$ Å³, $Z = 2$. Final indexes are $R1 = 0.0368$ and $wR2 = 0.0968$, and for all data, $R1 = 0.0478$, $wR2 = 0.1033$, and $GOF = 1.067$. The structure revealed two planar ring systems consisting of the diazaphosphole and the p-tetrafluorophenyl (tfbn) ring with an angle of 26.3° between the rings. The angle about the phosphine imine nitrogen (i.e., P:N-tfbn) is relatively open ($141.2(2)^\circ$), and the P:N bond length is relatively short ($1.514(2)$ Å).
 ((Trimethylsilyl)imino)bis(dimethylamino)phosphorano)diazaphosphole gave, with Cp^*TiCl_3 , $[(\eta^5-C_5Me_5)TiCl_2(N:P(NMe_2)_2(2,5-dimethyl-2H-1,2,3o2-diazaphosphol-4-yl))]$, which was also characterized structurally: monoclinic, P21 (Number 4), $a = 11.9477(11)$ Å, $b = 8.4757(6)$ Å, $c = 12.7567(11)$ Å, $\beta = 108.824(8)^\circ$, $V = 1222.7(2)$ Å³, $Z = 2$. Final indexes are $R1 = 0.0630$ and $wR2 = 0.1593$, and for all data, $R1 = 0.0768$, $wR2 = 0.1973$, and $GOF = 1.081$. The Ti-N-P angle of $161.0(5)^\circ$ was large, and the P:N distance ($1.592(6)$ Å) and the Ti-N distance ($1.781(6)$ Å) were both slightly shorter than those in similar titanium complexes. The P-N single bond distances between the exo-phosphorus atom and the attached dimethylamino groups were also short (1.649 Å (average)). These short values suggest delocalized bonding character throughout the metal-ligand framework, possibly a consequence of addnl. conjugation through the diazaphosphole ring.

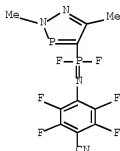
IT 229974-08-7P

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)

(preparation and crystal structure of)

RN 229974-08-7 HCAPLUS

CN Phosphonimidic difluoride, N-(4-cyano-2,3,5,6-tetrafluorophenyl)-P-(2,5-dimethyl-2H-1,2,3-diazaphosphol-4-yl)- (CA INDEX NAME)

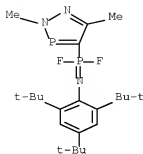


IT 229974-09-8P 229974-10-1P

RL: SPN (Synthetic preparation); PREP (Preparation)
 (preparation of)

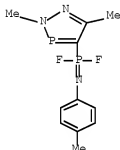
RN 229974-09-8 HCAPLUS

CN Phosphonimidic difluoride, P-(2,5-dimethyl-2H-1,2,3-diazaphosphol-4-yl)-N-[2,4,6-tris(1,1-dimethylethyl)phenyl]- (CA INDEX NAME)



RN 229974-10-1 HCAPLUS

CN Phosphonimidic difluoride, P-(2,5-dimethyl-2H-1,2,3-diazaphosphol-4-yl)-N-(4-methylphenyl)- (CA INDEX NAME)



CC 29-7 (Organometallic and Organometalloidal Compounds)

Section cross-reference(s): 75

IT 229974-08-7P 229974-17-8P

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)

(preparation and crystal structure of)

IT 74582-13-1P 229974-07-6P 229974-09-8P
 229974-10-1P 229974-11-2P 229974-12-3P 229974-13-4P
 229974-14-5P 229974-15-6P 229974-16-7P

RL: SPN (Synthetic preparation); PREP (Preparation)
 (preparation of)

OS.CITING REF COUNT: 14 THERE ARE 14 CAPLUS RECORDS THAT CITE THIS RECORD (14 CITINGS)

REFERENCE COUNT: 47 THERE ARE 47 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

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